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10/576,405	04/30/2007	Hideo Hada	SHIGA7.048APC	2382

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EXAMINER

EOFF, ANCA

ART UNIT	PAPER NUMBER
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1795

NOTIFICATION DATE	DELIVERY MODE
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02/28/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/576,405	Applicant(s) HADA ET AL.	
	Examiner ANCA EOF	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The foreign priority documents JP 2003-363521 filed on October 23, 2003, JP 2003-410489 filed on December 9, 2003 and JP 2004-057448 filed on March 2, 2004 were received and acknowledged. However, in order to benefit of the earlier filing date, certified English translations are required.
2. Claims 1-7 and 9-18 are pending in the application. Claim 8 is canceled.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uetani et al. (US Pg-Pub 2001/0014428) in view of Hatakeyama et al. (US Pg-Pub 2002/0207201).

With regard to claim 1, Uetani et al. disclose a chemically amplified positive resist composition comprising a resin (X) which is insoluble or slightly soluble in alkali but becomes soluble in alkali due to the action of an acid and an acid generating agent (Y) (abstract).

Specific examples of resin (X) are copolymers of 2-methyl-2-adamantyl methacrylate/3,5-dihydroxy-1-adamantyl methacrylate/ α -methacryloyloxy- γ -

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butyrolactone with Mw=7,100 (par.0098) and 2-ethyl-2-adamantyl methacrylate/3,5-dihydroxy-1-adamantyl methacrylate/ α -methacryloyloxy- γ -butyrolactone with Mw=5,600 (par.0099).

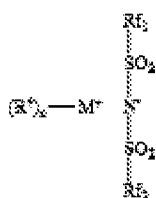
The resin (X) is equivalent to the resin component (A) of the instant application, comprising structural units (a) derived from a (meth)acrylate ester.

Uetani et al. further disclose that the acid generator can be an onium compound (par.0030) but fail to include the sulfonium compounds of formula (b-1) of the instant application as sulfonium compounds used as acid generators in the chemically amplified resist composition.

Hatakeyama et al. disclose a chemically amplified positive resist material comprising a base resin and an acid generator, wherein the acid generator has high sensitivity and high resolution with respect to high-energy rays of 300 nm or less (abstract).

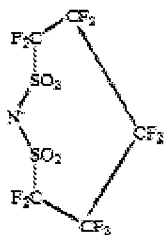
The base resin can be a polymer comprising units derived from (meth)acrylate ester comprising acid-dissociable groups and units derived from (meth)acrylate ester comprising lactone groups (see polymers 1-4 in par.0165).

The acid generator can be a compound represented by the formula (I):

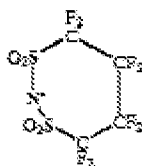


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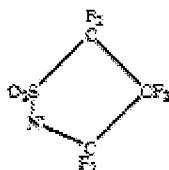
(I) (par.0022), wherein M^+ represents iodonium or sulfonium and R_{f1} , R_{f2} are straight-chained, branched or cyclic alkyl groups having 1 to 20 carbon atoms comprising at least one fluorine atom. R_{f1} and R_{f2} may be bonded together to form a ring (par.0024), as shown in the anions below:



(II) (formula (1)-24 in par. 0025);

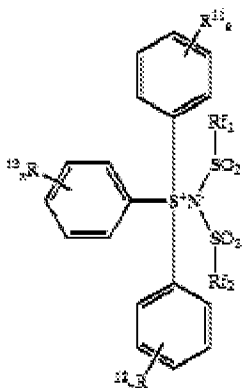


(III) (formula (1)-25 in par.0025);



(IV) (formula (1)-26 in par.0025).

Hatakeyama et al. further disclose that the acid generator may be represented by the formula (IV):



(V) (par.0030), wherein R^{11} , R^{12} and R^{13} may be hydrogen atoms or alkyl groups with 1 to 20 carbons (par.0031).

While Hatakeyama et al. does not specifically disclose sulfonium salts having a triarylsulfonium cation and an anion such as the ones in formulas (II)-(IV) above, it would have been obvious to one of ordinary skill in the art at the time of the invention to obtain such sulfonium salts, based on Hatakeyama's teachings that the onium salts may have an anion of formulas (II)-(IV) (par.0025) and a triaryl sulfonium cation, such as the one in formula (V) (par.0028-0030).

A triarylsulfonium salt having the anion of formula (II) is equivalent to the compound (b-1) of the instant application, wherein X is an alkylene group with 5 carbon atoms and all the hydrogens are replaced with fluorine atoms.

A triarylsulfonium salt having the anion of formula (III) is equivalent to the compound (b-1) of the instant application, wherein X is an alkylene group with 4 carbon atoms and all the hydrogens are replaced with fluorine atoms.

A triarylsulfonium salt having the anion of formula (IV) is equivalent to the compound (b-1) of the instant application, wherein X is an alkylene group with 3 carbon atoms and all the hydrogens are replaced with fluorine atoms.

The resist materials of Hatakeyama et al. have good sensitivity, resolution, line-edge roughness and I/G bias (par.0185).

Since the photoacid generator of Hatakeyama et al. is successfully used for chemically amplified resist comprising resins such as methacrylate copolymers and since Uetani et al. indicate the use of onium acid generators in its composition, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the acid generators of formula (IV) as disclosed by Hatakeyama et al. in the chemically amplified positive resist composition of Uetani et al., with a reasonable expectation of success.

With regard to claim 2, Hatakeyama et al. further disclose that an acid generator, different from the one of described above can be added to the composition and indicates a series of compounds comprising as anion a fluoroalkylsulfonate, such as triphenylsulfonium trifluoromethanesulfonate (par.0090).

With regard to claims 3-5, Uetani et al. disclose the 2-methyl-2-adamantyl methacrylate/3,5-dihydroxy-1-adamantyl methacrylate/ α -methacryloyloxy- γ -butyrolactone copolymer with Mw=7,100 (par.0098), wherein;

- the 2-methyl-2-adamantyl unit is equivalent to the structural unit (a1) derived from a methacrylate ester comprising an acid dissociable group;

- the α -methacryloyloxy- γ -butyrolactone unit is equivalent to the structural unit (a2) derived from a methacrylate ester comprising a lactone-containing monocyclic group;

- the 3,5-dihydroxy-1-adamantyl methacrylate unit is equivalent to the structural unit (a3) derived from a methacrylate ester comprising a polar-group containing aliphatic hydrocarbon group.

With regard to claim 6, Uetani et al. further disclose that the chemically amplified resist composition comprises a basic nitrogen-containing compound (par.0089).

With regard to claims 7-8, Uetani et al. further disclose a method of forming a pattern, comprising the following steps;

- applying the resist solution on a wafer by spin-coating (par.0106)
- pre-baking (par.0106);
- irradiating with an ArF excimer stepper through a line-and-space pattern (par.0107);
- subjecting the exposed wafer to post-exposure baking (par.0107);
- developing with an aqueous tetramethylammonium hydroxide solution, to obtain a developed pattern.(par.0107).

With regard to claim 9, Uetani et al. disclose a chemically amplified positive resist composition comprising a resin (X) which is insoluble or slightly soluble in alkali but becomes soluble in alkali due to the action of an acid and an acid generating agent (Y) (abstract).

A specific example of resin (X) is a copolymer of 2-methyl-2-adamantyl methacrylate/3,5-dihydroxy-1-adamantyl methacrylate/ α -methacryloyloxy- γ -butyrolactone with $M_w=7,100$ (par.0098) , wherein;

- the 2-methyl-2-adamantyl unit is equivalent to the structural unit (a1) derived from a methacrylate ester comprising an acid dissociable group;

- the α -methacryloyloxy- γ -butyrolactone unit is equivalent to the structural unit (a2) derived from a methacrylate ester comprising a lactone-containing monocyclic group;

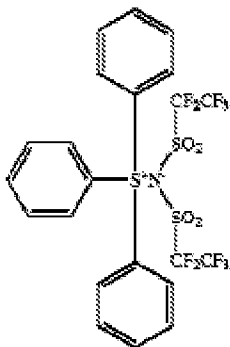
- the 3,5-dihydroxy-1-adamantyl methacrylate unit is equivalent to the structural unit (a3) derived from a methacrylate ester comprising a polar-group containing aliphatic hydrocarbon group.

Uetani et al. further disclose that the acid generator can be an onium compound (par.0030) but fail to include the sulfonium compounds of formula (b-1) or (b-2) of the instant application as sulfonium compounds used as acid generators in the chemically amplified resist composition.

Hatakeyama et al. disclose a chemically amplified positive resist material comprising a base resin and an acid generator, wherein the acid generator has high sensitivity and high resolution with respect to high-energy rays of 300 nm or less (abstract).

The base resin can be a polymer comprising units derived from (meth)acrylate ester comprising acid-dissociable groups and units derived from (meth)acrylate ester comprising lactone-containing mono- and bicyclic groups (see polymers 1-4 in par.0165).

The acid generator can be a compound represented by the formula (VI):



(VI) (PAG-1 in par.0163), which is equivalent to the compound of formula (b-2) of the instant application wherein R¹, R², R³ are phenyl groups and Y, Z are alkyl groups with 2 carbon atoms in which all the hydrogens are replaced with fluorine atoms.

The resist materials of Hatakeyama et al. have good sensitivity, resolution, line-edge roughness and I/G bias (par.0185).

Since the photoacid generator of Hatakeyama et al. is successfully used for chemically amplified resist comprising resins such as methacrylate copolymers and since Uetani et al. indicate the use of onium acid generators in its composition, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the acid generators of formula (IV) as disclosed by Hatakeyama et al. in the chemically amplified positive resist composition of Uetani et al., with a reasonable expectation of success.

With regard to claim 10, Hatakeyama et al. further disclose that an acid generator, different from the one of described above can be added to the composition and indicates a series of compounds comprising as anion a fluoroalkylsulfonate, such as triphenyl sulfonium trifluoromethanesulfonate (par.0090).

With regard to claim 11, Uetani et al. further disclose that the chemically amplified resist composition comprises a basic nitrogen-containing compound (par.0089).

With regard to claim 12, Uetani et al. further disclose a method of forming a pattern, comprising the following steps;

- applying the resist solution on a wafer by spin-coating (par.0106)
- pre-baking (par.0106);
- irradiating with an ArF excimer stepper through a line-and-space pattern (par.0107);
- subjecting the exposed wafer to post-exposure baking (par.0107);
- developing with an aqueous tetramethylammonium hydroxide solution, to obtain a developed pattern.(par.0107).

5. Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uetani et al. (US Pg-Pub 2001/0014428) in view of Hatakeyama et al. (US Pg-Pub 2002/0207201) and in further view of Uetani et al. (US Patent 6,348,297).

With regard to claims 13-16, Uetani et al. disclose a chemically amplified positive resist composition comprising a resin (X) which is insoluble or slightly soluble in alkali but becomes soluble in alkali due to the action of an acid and an acid generating agent (Y) (abstract).

A specific example of resin (X) is a copolymer of 2-methyl-2-adamantyl methacrylate/3,5-dihydroxy-1-adamantyl methacrylate/ α -methacryloyloxy- γ -butyrolactone with $M_w=7,100$ (par.0098) , wherein;

- the 2-methyl-2-adamantyl unit is equivalent to the structural unit (a1) derived from a methacrylate ester comprising an acid dissociable group;

- the α -methacryloyloxy- γ -butyrolactone unit is equivalent to the structural unit (a2) derived from a methacrylate ester comprising a lactone-containing monocyclic group;

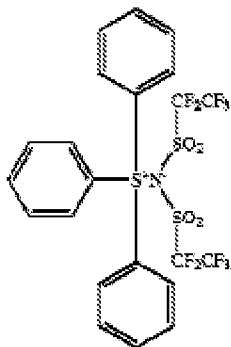
- the 3,5-dihydroxy-1-adamantyl methacrylate unit is equivalent to the structural unit (a3) derived from a methacrylate ester comprising a polar-group containing aliphatic hydrocarbon group.

Uetani et al. further disclose that the acid generator can be an onium compound (par.0030) but fail to include the sulfonium compounds of formula (b-1) or (b-2) of the instant application as sulfonium compounds used as acid generators in the chemically amplified resist composition.

Hatakeyama et al. disclose a chemically amplified positive resist material comprising a base resin and an acid generator, wherein the acid generator has high sensitivity and high resolution with respect to high-energy rays of 300 nm or less (abstract).

The base resin can be a polymer comprising units derived from (meth)acrylate ester comprising acid-dissociable groups and units derived from (meth)acrylate ester comprising lactone groups (see polymers 1-4 in par.0165).

The acid generator can be a compound represented by the formula (VI):



(VI) (PAG-1 in par.0163), which is equivalent to the compound of formula (b-2) of the instant application wherein R¹, R², R³ are phenyl groups and Y, Z are alkyl groups with 2 carbon atoms in which all the hydrogens are replaced with fluorine atoms.

The resist materials of Hatakeyama et al. have good sensitivity, resolution, line-edge roughness and I/G bias (par.0185).

Since the photoacid generator of Hatakeyama et al. is successfully used for chemically amplified resist comprising resins such as methacrylate copolymers and since Uetani et al. indicate the use of onium acid generators in its composition, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the acid generators of formula (IV) as disclosed by Hatakeyama et al. in the chemically amplified positive resist composition of Uetani et al., with a reasonable expectation of success.

Hatakeyama et al. further disclose that an acid generator, different from the one of described above can be added to the composition and indicates a series of compounds comprising as anion a fluoroalkylsulfonate, such as triphenylsulfonium trifluoromethanesulfonate (par.0090).

However, Uetani nor Hatakeyama discloses the amount of each acid generator used in combination.

Uetani et al. (US Patent 6,348, 297) disclose a chemical amplification type positive resist composition comprising a combination of acid generators, including a triarylsulfonium salt with a fluoroalkyl sulfonate anion (abstract).

Uetani et al. further disclose compositions comprising a mixture of acid generators, wherein the weigh ratio between the triarylsulfonium salt with a fluoroalkyl sulfonate anion and another onium salt is 1:2. The composition has excellent resolution and good transmittance (Example 5 in table 3, column 22, lines 32-33, wherein B2 and C1 are defined in column 20, lines 30-50)

The composition of Uetani et al. provides a good pattern profile under exposure using light of wavelength of 220 nm or shorter (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the teaching of Uetani et al. and use the an onium salt having a fluoroalkylsulfonate anion and the sulfonium salt of formula (VI) in a weight ratio of 1:2 in the composition of Uetani modified by Hatakeyama, with a reasonable expectation of success.

With regard to claim 17, Uetani et al. further disclose that the chemically amplified resist composition comprises a basic nitrogen-containing compound (par.0089).

With regard to claim 18, Uetani et al. further disclose a method of forming a pattern, comprising the following steps;

- applying the resist solution on a wafer by spin-coating (par.0106)
- pre-baking (par.0106);
- irradiating with an ArF excimer stepper through a line-and-space pattern (par.0107);
- subjecting the exposed wafer to post-exposure baking (par.0107);
- developing with an aqueous tetramethylammonium hydroxide solution, to obtain a developed pattern (par.0107).

Terminal Disclaimer

6. The terminal disclaimer filed on January 14, 2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent issued from the co-pending application 10/557,694 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

7. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new grounds of rejection.

On pages 7-8 of the Remarks, the applicant shows how the newly amended claims differentiate over the prior art. However, new grounds of rejection are shown above in par. 3-5 of the Office Action.

As shown above, Uetani et al. teach a positive working resist composition comprising resin (X), which may be a copolymer of 2-methyl-2-adamantyl

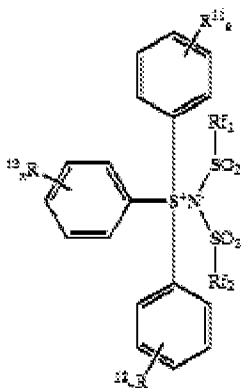
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methacrylate/3,5-dihydroxy-1-adamantyl methacrylate/ α -methacryloyloxy- γ -butyrolactone with Mw=7,100 (par.0098) and a copolymer 2-ethyl-2-adamantyl methacrylate/3,5-dihydroxy-1-adamantyl methacrylate/ α -methacryloyloxy- γ -butyrolactone with Mw=5,600 (par.0099). The resin (X) of Uetani et al. is identical to the resin component (A) having the structural units (a1) derived from a (meth)acrylate ester comprising an acid dissociable, dissolution inhibiting group, (a2) derived from a (meth)acrylate ester comprising a lactone-containing monocyclic or polycyclic group and (a3) derived from a (meth)acrylate ester comprising a polar group-containing aliphatic hydrocarbon group. Uetani et al. further disclose that the acid generator may be a sulfonium salt but fails to disclose that the sulfonium compounds of formulas (b-1) or (b-2) are used as acid generators.

Hatakeyama et al. disclose a chemically amplified positive resist material comprising a base resin and an acid generator, wherein the acid generator has high sensitivity with respect to high-energy rays of 300 nm or less (abstract). The base resin can be a polymer comprising units derived from (meth)acrylate ester comprising acid-dissociable groups and units derived from (meth)acrylate ester comprising lactone groups (see polymers 1-4 in par.0165), similar to the resin (X) of Uetani et al.

Hatakeyama et al. further disclose that the acid generator may be represented by the formula (IV):

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(V) (par.0030), wherein R^{11} , R^{12} and R^{13} may be hydrogen atoms or alkyl groups with 1 to 20 carbons (par.0031). R_{11} and R_{12} may be bonded together to form a ring (par.0024).

Since the acid generators of Hatakeyama et al. have high sensitivity for radiation of 300 nm or less, it is successfully used for chemically amplified resist comprising resins such as methacrylate copolymers and since Uetani et al. indicate the use of onium acid generators in its composition, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the acid generators of Hatakeyama et al. in the chemically amplified positive resist composition of Uetani et al., with a reasonable expectation of success.

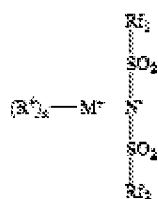
Therefore, the composition of modified Uetani teaches all the features claimed in the instant application.

IF your reference teaches the same structure, please include this here

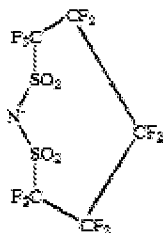
On pages 9-10 of the Remarks, the applicant is showing unexpected results. However, in the light of the prior art teachings, the arguments are not considered persuasive.

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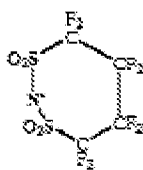
The applicant argues that the acid generator of formula (b-1) combined with conventional ArF resins would show problems in regard to fine levels of resolution, LER and depth of focus requirements. However, Hatakeyama et al teaches compounds having the formula



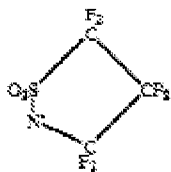
(I) (par.0022), wherein M^+ represents iodonium or sulfonium and R_{f1} , R_{f2} are straight-chained, branched or cyclic alkyl groups having 1 to 20 carbon atoms comprising at least one fluorine atom. R_{f1} and R_{f2} may be bonded together to form a ring (par.0024), as shown in the anions below:



(II) (formula (1)-24 in par. 0025);

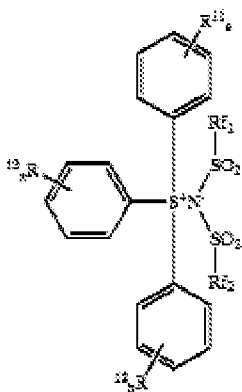


(III) (formula (1)-25 in par.0025);



(IV) (formula (1)-26 in par.0025).

Hatakeyama et al. further disclose that the acid generator may be represented by the formula (IV):



(V) (par.0030), wherein R¹¹, R¹² and R¹³ may be hydrogen atoms or alkyl groups with 1 to 20 carbons (par.0031).

While Hatakeyama et al. does not specifically disclose sulfonium salts having a triarylsulfonium cation and an anion such as the ones in formulas (II)-(IV) above, it would have been obvious to one of ordinary skill in the art at the time of the invention to obtain such sulfonium salts, based on Hatakeyama's teachings that the onium salts may have an anion of formulas (II)-(IV) (par.0025) and a triaryl sulfonium cation, such as the one in formula (V) (par.0028-0030).

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The chemically amplified resists comprising such an acid generator have high sensitivity, high resolution with respect to energy rays of 300 nm or less, small line edge roughness (LER) (abstract).

The resin (X) of Uetani et al. has all the features of the resin component (A) of the instant application.

Since the acid generators of Hatakeyama et al. have high sensitivity for radiation of 300 nm or less, it is successfully used for chemically amplified resist comprising resins such as methacrylate copolymers and since Uetani et al. indicate the use of onium acid generators in its composition, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the acid generators of Hatakeyama et al. in the chemically amplified positive resist composition of Uetani et al., with a reasonable expectation of success.

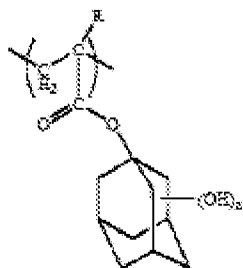
Therefore, the composition of modified Uetani teaches all the features claimed in the instant application.

On pages 11-12 of the Remarks, the applicant states that the newly added claim comprises the limitation of the structural unit (a3) is derived from a (meth)acrylate ester containing a hydroxyl-group-containing aliphatic hydrocarbon group and further states that the dihydroxy-1-adamantyl(meth)acrylate unit of Uetani et al. does not meet the limitation.

However, par.0030 of the specification of the instant application states “ an aliphatic hydrocarbon group include straight-chain or branched hydrocarbon groups of 1

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to 10 carbon atoms and polycyclic aliphatic hydrocarbon groups” and formula 9 in par.0032 shows the compound:



, wherein n is an integer from 1 to 3.

Therefore, it is the examiner's position that the dihydroxy-1-adamantyl(meth)acrylate of Uetani et al. meets the limitation for the structural unit (a3) and the resin (X) of Ueatni et al. comprises units equivalent to the units (a1), (a2), (a3) of the instant application.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anca Eoff whose telephone number is 571-272-9810. The examiner can normally be reached on Monday-Friday, 6:30 AM-4:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AE

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795